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Whirling disease & Montana's wild trout

whirling disease questions

Q: Is there a human health risk associated with whirling disease?
A: There are no reports of humans suffering ill effects from either eating infected fish or from coming in contact with the parasite.

Q: Are other animals in the environment affected?
A: At this time, the illness is believed to only affect trout and salmon.

Q: Is there a cure?
A: At this time, there is no known cure for whirling disease. Prevention is the only protection.

Q: How did whirling disease get to the Madison?
A: Because whirling disease is not indigenous to Montana, and had never been detected here prior to December, 1994, FWP suspects the likely origin is an illegal introduction of live, infected fish into the river near the West Fork of the Madison. All known infections in other states have been attributed to the stocking of infected fish. While possible, it is unlikely that the disease arrived in the Madison via water contained in a fishing boat that moved from a contaminated source in another state to Montana, or via the feces of a scavenger or predator that fed upon an infected trout.

Q: Where else has the disease been found?
A: Whirling disease occurs in much of Europe, where it probably originated. It was accidentaly introduced to the United States in the mid 1950s when infected, processed, and frozen trout arrived in Pennsylvania for the fish-market trade. The disease has subsequently been detected in the following 20 states: Alabama, California, Colorado, Connecticut, Idaho, Massachusetts, Michigan, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Virginia, Utah, West Virginia, Wyoming, and most recently, in Montana.

Q: Can the spread of the disease be stopped?
A: Once the disease is in a river, there is no known way to stop its spread.

Q: Is the disease recognizable by anglers?
A: Anglers probably won't detect the disease in any fish they catch for two reasons: (1) the disease primarily affects young trout smaller than four inches in length; anglers seldom observe these young trout; and (2) an infected fish's erratic tail chasing makes it extremely vulnerable prey in the wild, so it is unlikely that an infected fish would survive to grow to a catchable size.

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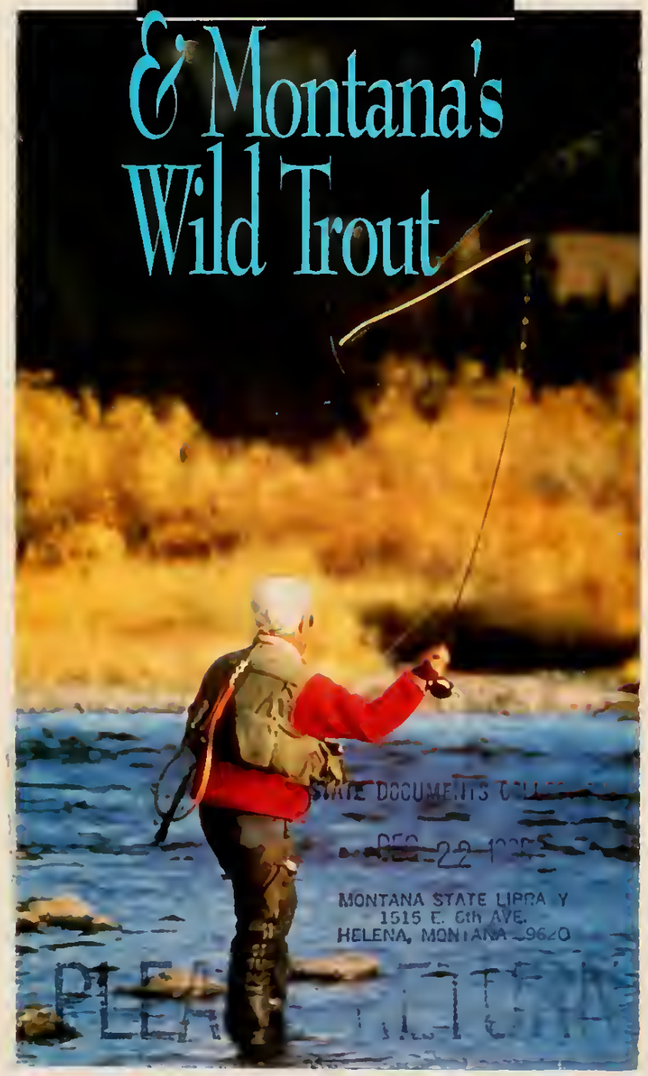


Whirling disease and the Madison River

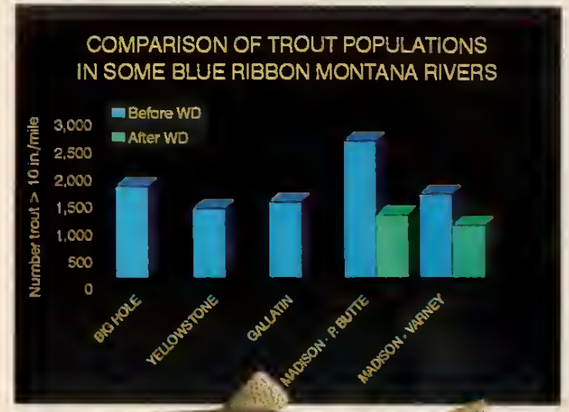
Late in 1994, Montana Fish, Wildlife & Parks announced that whirling disease was the suspected cause of a 90 percent decline in the upper Madison River's wild rainbow trout population. Whirling disease is a parasitic and potentially fatal infection of trout & salmon for which there is no known cure.

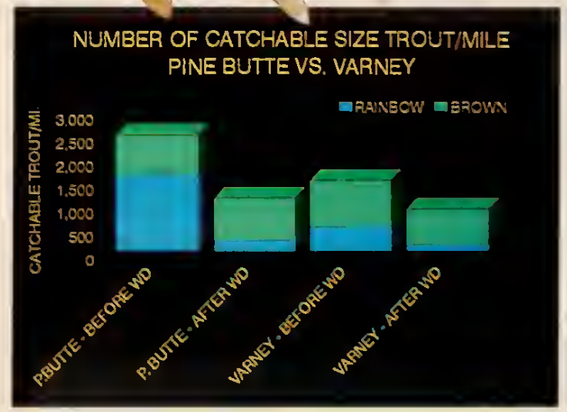
It is certain that the wild rainbow trout population in the 56-mile stretch of the Madison River between Quake Lake and Ennis Lake has declined from about 3,300 fish per mile in 1991 to about 300 per mile in 1994. What is uncertain is whether whirling disease caused a direct mortality of trout, or if its effects are indirect in combination with other factors.

In their search for answers, FWP fisheries biologists are now attempting to learn as much as possible as fast as possible, about whirling disease and how it functions in the wild.

Meanwhile, the good news is the river's brown trout have not experienced any unusual declines. In fact, the Madison's total number of catchable wild trout still favorably compares to other Montana Blue Ribbon trout streams, like the Big Hole, the Yellowstone, and the Gallatin rivers.

Rainbow trout have historically comprised more than half of the upper Madison River's fishery immediately below Quake Lake, but as the river progresses toward Ennis, brown trout--which have always offered the river's largest and heaviest wild trout--begin to take over. Near Ennis Lake, the upper Madison River's brown trout population has historically comprtsed between 60 and 70 percent of the wild trout fishery. Today, the brown trout fishery remains healthy.

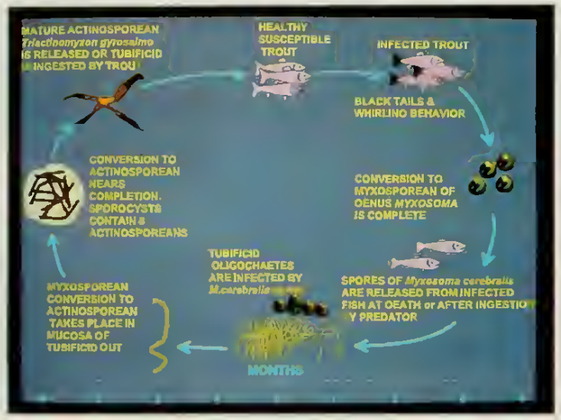




What is whirling disease?

Whirling disease is caused by a microscopic, water-borne, protozoan parasite that attacks the cartilage of young trout. Whirling disease spores (*Myxobolus cerebralis*) are released into the water when infected fish die and decompose, or are consumed and excreted by predators or scavengers.

The parasite has a complex, two-host life cycle that involves the trout and the bottom-dwelling tubifex worm, which is found in streams, rivers, and lakes throughout Montana.



While the parasite may not directly kill a trout, an infected fish's erratic tail chasing makes it extremely vulnerable to predation. The whirling also causes fish to be unable to feed normally, which can eventually result in starvation and death.

The disease is now found in 20 states and appears to be spreading rapidly throughout the western United States. Unfortunately, how whirling disease functions in the wild is not well understood. Most information regarding whirling disease has been generated from experiences with fish reared in hatcheries. In fact, the question of how it affects wild trout populations is still a matter of debate among fish-health specialists.

Rainbow trout appear to be most susceptible to whirling disease infection, followed by sockeye salmon, golden trout, cutthroat trout, brook trout, steelhead, chinook salmon, Atlantic salmon, brown trout, and coho salmon. Lake trout may be immune to the disease. How it affects grayling, bull trout, mountain whitefish--and other fish--is unknown at this time.

In Montana, FWP is seeking to decipher the relationship between wild trout and the whirling disease parasite. The aim of FWP's research is to discover solutions through intensive study and scientific experimentation.

prevention and control in the wild

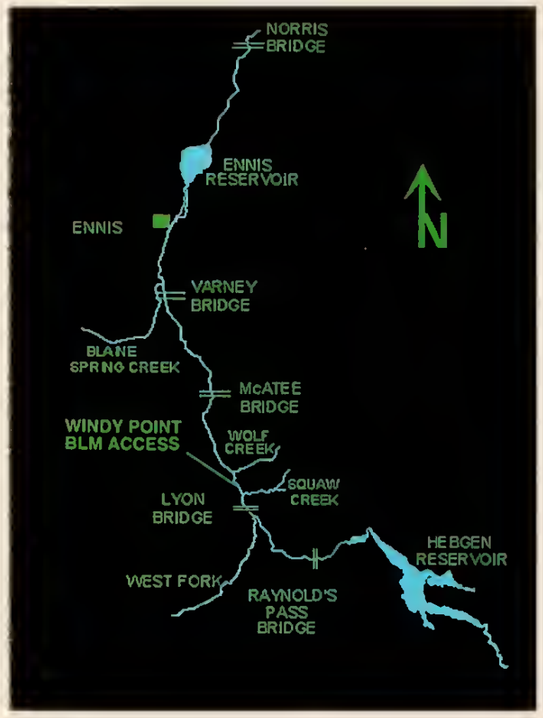
As yet no studies have been conducted to determine how *Myxobolus cerebralis* (the protozoan spore that causes the illness) functions in the wild. FWP hopes to discover how the parasite moves from place to place in the wild, and if there is a way to contain its spread.

trout population and whirling disease monitoring

FWP researchers have expanded trout population monitoring and whirling-disease testing in the Madison River, its tributaries, and in other Montana river basins. As of April, 1995, the disease has turned up in the Ruby River and Poindexter Slough in southwestern Montana; in Blaine Spring Creek, a Madison River tributary; and in Willow Creek, a Jefferson River tributary.

The intensive disease-monitoring program is designed to track the downstream and upstream movement of the disease, as well as to determine if the disease exists in other Montana streams.

FWP's whirling disease and trout population investigations will examine all trout age classes, follow populations through their lifecycles, and through the lifecycle of the parasite. In this way, researchers hope to discover a weak link in the lifecycle of the parasite, or, perhaps, a rainbow trout strain whose immunity to infection may be passed on to future generations of wild rainbow trout. FWP also will attempt to determine how the illness affects grayling, cutthroat trout, whitefish and Kokanee salmon populations.



temporary river closures

To protect the Madison's surviving rainbow trout, angling on portions of the upper river was closed during the traditional rainbow trout spawning season in the spring of 1995.

To determine if angling pressure influences a recovery of the Madison River's rainbow trout, a 4.5 mile stretch of the upper river between Squaw Creek and the Windy Point fishing access site will be closed from March 1, 1995, through February 29, 1996.

river-wide creel census

How anglers respond to whirling disease, and how it affects their experience, are important aspects of FWP's research. FWP will conduct a river-wide creel census on the Madison during the '95 fishing season.

sculpin ban

The collection of sculpins and/or their use as bait are prohibited in Montana. The ban came as an emergency precaution after sculpins taken from the Madison were found to be carrying spores resembling *Myxobolus cerebralis*

a solution through research and cooperation

In the meantime, FWP will:
(1) continue its monitoring at state hatcheries to ensure they remain disease free and
(2) aggressively examine all waters in Montana for whirling disease parasite.

FWP also will participate in international cooperative efforts to exchange whirling disease information, expertise, and discoveries with other states and provinces and with the U.S. Fish & Wildlife Service.

how you can help

Anglers, boaters and others may be able to help prevent the spread of whirling disease by adhering to the following precautionary routines after enjoying a day on the water.

- Thoroughly check your vehicle, boat, anchor, trailer and axles, waders, boots, and fishing gear for mud that could be holding tubifex worms and whirling disease spores. When you find mud clinging to your equipment, wash or scrape it off before departing the fishing access site.

- Drain your boat and equipment of all water. The parasite may be present in water in your boat, cooler, or live well, and could travel with you from place to place. Do not transport any river or lake water in coolers, buckets or live wells from one river basin to another. The whirling disease parasite is smaller than a grain of sand, so even water that appears normal may be harboring the parasite. Make every effort to dry your boat and your equipment between river trips.

- Do not transport any live fish from one place to another. In Montana, it is illegal to move live fish from one water body to other waters.

- Do not dispose of fish entrails, skeletal parts, or other by-products in any body of water. It is illegal to do so in Montana.

- Do not transport aquatic plants. Remove all aquatic plants and weeds from your vehicle, boat, trailer and axles, anchor, and other accessory equipment before departing the fishing access site.

With your assistance and cooperation, we can help prevent the spread of whirling disease in Montana.

Montana Fish, Wildlife & Parks
1420 E. Sixth Ave. Helena, Mt 59620 406-444-2535